

REMARKS

Reservation of Rights

In this amendment, applicant has cancelled claims 4-5, 10, 16, 19, 22, and 24 from further consideration in this application. Applicant is not conceding that the subject matter encompassed by claims 4-5, 10, 16, 19, 22, and 24 is not patentable. Claims 4-5, 10, 16, 19, 22, and 24 were cancelled in this amendment solely to facilitate expeditious prosecution of the remaining claims. Applicant respectfully reserves the right to pursue additional claims, including the subject matter encompassed by claims 4-5, 10, 16, 19, 22, and 24, as presented prior to this amendment in one or more continuing applications.

Objection to claim 4

The examiner objected to claim 4 for informalities. Claim 4 has been cancelled herein, and therefore need not be addressed.

Rejection of claims 4-5, 9-10, 16, 19, and 22-24 under 35 U.S.C. §112, first paragraph

The examiner rejected claims 4-5, 10, 16, 19, 22, and 24 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Claims 4-5, 10, 16, 19, 22, and 24 have been cancelled herein and therefore need not be addressed. The examiner states, “Examiner cannot find any paragraphs in the specification that explains how “I/O” is identified and what components constitute “I/O”.” Applicant points the examiner to FIGS. 6 and 7 and the corresponding description in the specification at p. 10 line 11 to p. 11 line 10. Step 620 reads “Quiesce I/O to be Reconfigured.” The I/O to be reconfigured in step 620 corresponds to an identified I/O resource as recited in the claims. Step 720, 730 and 740 all refer to “I/O to be Reconfigured.” The I/O to be reconfigured in step 720, 730 and 740 corresponds to an

identified I/O resource as recited in the claims. Applicant's specification at p. 9 lines 15-20 states:

An "I/O resource" in this context may be any hardware or software that may be independently allocated by partition manager 121 to one or more logical partitions. Examples of hardware I/O resources include processors, memory, hard disk drives, and I/O slots. Examples of software I/O resources include a database, internal communications (such as a logical LAN), or applications (such as word processors, e-mail, etc.).

Applicant respectfully asserts the term "identified I/O resource" is adequately supported in the specification and drawings as shown above, thereby traversing the examiner's rejection of claims 9 and 23 under 35 U.S.C. §112, first paragraph.

Rejection of claims 4-5, 9-10, 16, 19, and 22-24 under 35 U.S.C. §112, second paragraph

The examiner rejected claims 4-5, 10, 16, 19, 22, and 24 under 35 U.S.C. §112, second paragraph, as failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4-5, 10, 16, 19, 22, and 24 have been cancelled herein and therefore need not be addressed. Claims 9 and 23 have been amended herein to specify I/O as Input/Output, and to add the limitation "owns the identified I/O resource" to more explicitly claim the I/O as an I/O resource thereby traversing the examiner's rejection. Applicant respectfully requests reconsideration of the examiner's rejection of claims 9 and 23 under 35 U.S.C. §112, second paragraph.

Rejection of claims 4-5, 9-10, 16, 19, and 22-24 under 35 U.S.C. §103(a)

The examiner rejected claims 4-5, 8-10, 16, 19, and 22-24 under 35 U.S.C. §103(a) as being unpatentable over Day in view of Tarui and further in view of Kaneko. Claims 4-5, 10, 16, 19, 22, and 24 have been cancelled herein and therefore need not be addressed. Each of the remaining claims is addressed below.

Claim 9

Claim 9 has been amended herein to recite: “the partition manager detecting a hardware state in the computer system that requires reconfiguration of the identified I/O resource.” Support for this amendment is found in FIG. 5 step 510 and the corresponding portion of the specification.

Claim 9 has been amended herein to include the limitation “at least one logical partition that owns the identified I/O resource and at least one logical partition that does not own the identified I/O resource”. In rejecting claim 4, which the examiner cites in the rejection for claim 9, the examiner states:

Day and Tarui do not expressly disclose the claim’s aspects of suspends/resumes **all** of the plurality of the logical partitions. However, Kaneko’s paragraph 31 discloses a storage subsystem with I/O resources being assigned separately to plurality of the logical partitions.

Paragraph 31 of Kaneko reads:

Under this coordinated access operation over the information storing disk array units, this cluster disk subsystem is logically partitioned during the operation so that the cluster resulting from the division can be assigned to and used by different users. This logical partitioning is executed by ordering the cluster coupler 30 to separate the units by software as mentioned below.

The examiner goes on to state, “Kaneko further discloses an I/O reconfiguration including **all** of the logical partition [sic] are suspended...”, and cites to paragraph 32.

The examiner also cites paragraph 32 of Kaneko as teaching “all of the logical partitions are suspended”. Kaneko states, “As seen in the flowcharts, the whole system is switched to a disconnection standby mode (step 31).” Applicant respectfully asserts the suspension of all the logical partitions in Kaneko does not read on the suspension of all the logical partitions in claim 9. Claim 9 recites, “suspending all of the plurality of

logical partitions...”, but the plurality of logical partitions in claim 9 comprises “at least one logical partition that owns the identified I/O resource and at least one logical partition that does not own the identified I/O resource.” Kaneko teaches that all of the logical partitions are suspended, but all of the logical partitions own the resources spoken of.

Paragraph 28 states:

Therefore, according to this embodiment, each disk array unit of the cluster disk subsystem can refer to or update (hereafter, referred to as access) the resources (specifically, the cache storage devices and common storage devices) of the other disk array units that constitute the cluster.

Therefore, according to the language in Kaneko quoted above, all of the partitions have access the resources in each of the other partitions. This means that even if all of the partitions are suspended, only the partitions that own the resources have been suspended, similar to the teaching in Tarui.

Because each logical partition in Kaneko can access the shared resources in all the other logical partitions, Kaneko must stop all the logical partitions. However, stopping all the logical partitions in Kaneko only reads on stopping logical partitions that own I/O resources. Nowhere do any of Day, Tarui or Kaneko teach or suggest suspending all logical partitions, where some of the logical partitions do not own the identified I/O resource. As a result, claim 9 is allowable over the combination of Day, Tarui and Kaneko, and applicant respectfully requests reconsideration of the examiner’s rejection of claim 9 under 35 U.S.C. §103(a).

Claim 23

In rejecting claim 23 the examiner relies on the rejection of claim 22. In rejecting claim 22 the examiner admits Day and Tarui do not disclose the limitations relating to I/O loops and states:

However, Kanano[sic] discloses a storage subsystem with I/O resources that are arranged including a plurality of I/O towers (Kanano's[sic] Fig. 2: #11 to #14, paragraphs 27-28) coupled to the apparatus via[sic] plurality of I/O loops (Kanano's[sic] Fig. 2: #211 to #214, and #221 to #224 etc..arrays of disks are arranged in several I/O loops associating with towers Fig. 2: #11 to #14, see Kanano's paragraphs 27-28).

As quoted above, the examiner cites a reference Kanano which is not a valid reference. Applicant assumes a typo and that the examiner meant to cite Kaneko. The examiner's assumptions above are in error. The examiner assumes that elements 11-14 of FIG. 2 of Kaneko show I/O towers and that these I/O towers are connected via I/O loops 211-214, 221-224, etc. This assumption is incorrect, as FIG. 2 of Kaneko clearly shows each of the alleged I/O loops 211-214, 221-224, etc., to be local I/O loops to each of the towers 11-14. The I/O towers 11-14 are not connected by any I/O loop as suggested by the examiner. Nowhere does Kaneko teach, suggest, or show I/O loops as recited in claim 23.

The examiner's rejection of claim 22 does not cite to any portion of Kaneko as allegedly teaching limitations (2) and (3) in claim 22, which correspond to limitations (2) and (3) in claim 23. As a result, the examiner has failed to establish a prima facie case of obviousness for claim 23 under 35 U.S.C. §103(a). Nowhere do ANY of the cited references have ANYTHING to do with rebalancing an I/O loop. Nowhere does Kaneko teach or suggest rebalancing an I/O loop with the steps recited in claim 23. The examiner's attempt to read Kaneko on claim 23 is akin to attempting to pound a square peg into a round hole: it just doesn't fit. The addition of a disk resource in Kaneko has nothing to do with detecting when an I/O loop is unbalanced, and taking the corrective action steps in claim 23 to rebalance the I/O loop. For the many reasons given above, claim 23 is allowable over the combination of Day, Tarui, and Kaneko, and applicant respectfully requests reconsideration of the examiner's rejection of claim 23 under 35 U.S.C. §103(a).

In the Response to Arguments section of the pending office action, the examiner indicates some confusion by stating the “I/O” and the “I/O resource” are not necessarily the same. This is incorrect. The amendments to the claims herein should remove this confusion since “I/O” has been replaced with “I/O resource” in the pending claims.

Conclusion

In summary, none of the cited art, either alone or in combination, teaches, supports, or suggests the unique combination of features in applicant’s claims presently on file. Therefore, applicant respectfully asserts that all of applicant’s claims are allowable. Such allowance at an early date is respectfully requested. The Examiner is invited to telephone the undersigned if this would in any way advance the prosecution of this case.

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Respectfully submitted,

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